

adding, by the communications manager, a global address to the result of the computation; propagating, on the message-passing communications network, a message comprising the global address and the result of the computation; receiving the message, via the message-passing communications network, by the communications manager of the second processor element; comparing, by the communications manager of the second processor element, the global address in the message with the predefined values for a match; in the event of a match, computing a local address by the communications manager of the second processor element, and storing the results of the computation at the local address via the common bus to the local data memory.

21. A parallel computer system having at least first and second processor elements, each processor element comprising a processor, a local program memory, a local data memory, a communications manager and an operating system, within each processor element the local program memory, local data memory, and communications manager all communicatively coupled by means of a common bus; the local data memories of the at least first and second processor elements not on a common bus; the communications managers of the at least first and second processor elements communicatively coupled by means of a message-passing communications network; the processor elements each executing an application; each communications manager further containing a plurality of predefined values each of which, in the event of a match of one of the predetermined values to a global address in a message, causes storage of results of an associated computation in local data memory;

for each communications manager, the communications manager comprising first means

responsive to writing, by the processor of the processor element, by means of the common bus of the first processor element, a result of a computation into the communications manager of the first processor element, by adding a global address to the result of the computation, and by propagating, on the message-passing communications network, a message comprising the global address and the result of the computation;

for each communications manager, the communications manager comprising second means responsive to receiving a message, via the message-passing communications network, by the communications manager, for comparing the global address in the message with the plurality of predefined values for a match, in the event of a match, for computing a local address, and storing the results of the computation at the local address via the common bus to the local data memory.

26. A method of operating a parallel computer system having at least first and second processor elements, each processor element comprising a processor, a local program memory, a local data memory, a communications manager and an operating system, within each processor element the local program memory, local data memory, and communications manager all communicatively coupled by means of a common bus; the communications managers of the at least first and second processor elements communicatively coupled by means of a message-passing communications network; the processor elements each executing an application; each communications manager further containing a plurality of predefined values each of which, in the event of a match of one of the predetermined values to a global address in a message, causes storage of results of an associated computation in local data memory; the method comprising the steps of:

writing, by the processor of the first processor element, by means of the common bus of the first processor element, a result of a computation into the communications manager of the first processor element;

adding, by the communications manager, a global address to the result of the computation;

propagating, on the message-passing communications network, a message comprising the global address and the result of the computation;

receiving the message, via the message-passing communications network, by the communications manager of the second processor element;

comparing, by the communications manager of the second processor element, the global address in the message with the predefined values for a match;

in the event of a match, computing a local address by the communications manager of the second processor element, and storing the results of the computation at the local address via the common bus to the local data memory,

wherein the predefined values are further characterized as comprising an address window, each window comprising an initial address and an end address, a match comprising the global address falling between the initial address and the end address.

27. A method of operating a parallel computer system having at least first and second processor elements, each processor element comprising a processor, a local program memory, a local data memory, a communications manager and an operating system, within each processor element the local program memory, local data memory, and communications manager all communicatively coupled by means of a common bus; the communications managers of the at least first and second processor elements communicatively coupled by means of a message-passing communications network; the processor elements each executing an application; each communications manager further containing a plurality of predefined values each of which, in the event of a match of one of the predetermined values to a global address in a message, causes storage of results of an associated computation in local data memory; the method comprising the steps of:

writing, by the processor of the first processor element, by means of the common bus of the first

processor element, a result of a computation into the communications manager of the first processor element;

adding, by the communications manager, a global address to the result of the computation;

propagating, on the message-passing communications network, a message comprising the global address and the result of the computation;

receiving the message, via the message-passing communications network, by the communications manager of the second processor element;

comparing, by the communications manager of the second processor element, the global address in the message with the predefined values for a match;

in the event of a match, computing a local address by the communications manager of the second processor element, and storing the results of the computation at the local address via the common bus to the local data memory,

wherein the propagating step comprises propagating the message to a number of processor elements, the number comprising less than all and more than one of the processor elements.

28. A parallel computer system having at least first and second processor elements, each processor element comprising a processor, a local program memory, a local data memory, a communications manager and an operating system, within each processor element the local program memory, local data memory, and communications manager all communicatively coupled by means of a common bus; the local data memories of the at least first and second processor elements not on a common bus; the communications managers of the at least first and second processor elements communicatively coupled by means of a message-passing communications network; the processor elements each executing an application; each communications manager

further containing a plurality of predefined values each of which, in the event of a match of one of the predetermined values to a global address in a message, causes storage of results of an associated computation in local data memory;

for each communications manager, the communications manager comprising first means responsive to writing, by the processor of the processor element, by means of the common bus of the first processor element, a result of a computation into the communications manager of the first processor element, by adding a global address to the result of the computation, and by propagating, on the message-passing communications network, a message comprising the global address and the result of the computation;

for each communications manager, the communications manager comprising second means responsive to receiving a message, via the message-passing communications network, by the communications manager, for comparing the global address in the message with the predefined values for a match, in the event of a match, for computing a local address, and storing the results of the computation at the local address via the common bus to the local data memory,

wherein the predefined values are further characterized as comprising an address window, each window comprising an initial address and an end address, a match comprising the global address falling between the initial address and the end address.

29. A parallel computer system having at least first and second processor elements, each processor element comprising a processor, a local program memory, a local data memory, a communications manager and an operating system, within each processor element the local program memory, local data memory, and communications manager all communicatively coupled by means of a common bus; the local data memories of the at least first and second processor elements not on a common bus; the communications managers of the at least first and second processor elements communicatively coupled by means of a message-passing communications network; the processor elements each executing an application; each communications manager

further containing a plurality of predefined values each of which, in the event of a match of one of the predetermined values to a global address in a message, causes storage of results of an associated computation in local data memory;

for each communications manager, the communications manager comprising first means responsive to writing, by the processor of the processor element, by means of the common bus of the first processor element, a result of a computation into the communications manager of the first processor element, by adding a global address to the result of the computation, and by propagating, on the message-passing communications network, a message comprising the global address and the result of the computation;

for each communications manager, the communications manager comprising second means responsive to receiving a message, via the message-passing communications network, by the communications manager, for comparing the global address in the message with the predefined values for a match, in the event of a match, for computing a local address, and storing the results of the computation at the local address via the common bus to the local data memory,

wherein the first means propagates the message to a number of processor elements, the number comprising less than all and more than one of the processor elements.

REMARKS

This paper takes steps in reliance upon agreement reached during an Interview conducted on March 6, 2003.

Claim 16 has been amended as discussed with the Examiner during the interview. Claims 21, 26, 27, 28 and 29 have been correspondingly amended.